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IMPACT OF NATURAL DISASTERS ON ECONOMIC DEVELOPMENT OF DIFFERENT COUNTRIES

Abstract: this article discusses the impact of natural disasters on the economic growth based on the short run and the long run. Despite that the short run impact of disasters implies infrastructure destruction and the disruption of economic activities that lowers production and trade. And, of course, it is also important to analyze how these occurrences put the pressure in dealing with a population and human capital shortage and labor force depletion. In the longer run, natural disasters discourage investment, decline productivity, and divert government expenditure from activities that can boost productivity. This way, it also shows that policy and resilience strategies must be accounted for to reduce the negative effects on the economic performance.

Keywords: natural disasters, infrastructure, investment, productivity.

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ВЛИЯНИЕ ПРИРОДНЫХ КАТАСТРОФ НА ЭКОНОМИЧЕСКОЕ РАЗВИТИЕ РАЗЛИЧНЫХ СТРАН

Аннотация: в статье представлено исследование влияния стихийных бедствий на экономический рост в краткосрочной и долгосрочной перспективе. Краткосрочные последствия стихийных бедствий подразумевают разрушение инфраструктуры и нарушение экономической деятельности, что приводит к снижению производства и торговли. И, конечно, также важно проанализировать, как эти события оказывают давление на борьбу с нехваткой населения и человеческого капитала, а также с истощением рабочей силы. В долгосрочной перспективе стихийные бедствия препятствуют инвестициям, снижают производительность и отвлекают государственные расходы от деятельности, которая может повысить производительность. Таким образом, это также показывает, что необходимо учитывать политику и стратегии устойчивости к стихийным бедствиям, чтобы уменьшить негативное воздействие на экономические показатели.

Ключевые слова: стихийные бедствия, инфраструктура, инвестиции, производительность.

Natural disasters as hurricanes, earthquakes and floods have severe immediate and long—term economic impacts. These effects include, on the extreme end of the scale, the demise of infrastructure and disruptions of commercial proceedings, and on the extended end of the scale, lowers levels of efficiency and investment. For instance, the catastrophe which occurred in Türkiye and Syria in the year 2023 resulted to several disastrous outcomes and the overall loss standing at \$50 billion. This encompasses loss of both tangible and intangible assets but worryingly extends to the economic stability of the affected region. Likewise, short term impacts of Hurricane Katrina, which resulted in more than \$150 billion loss, were negative on employment and income but quite beneficial in the long run for some of the victims. However, these recovery patterns are not smooth – low-income persons, and areas hit hardest by the disasters,

suffer longer periods of financial pains [1].

According to the impacts that are realized, natural disasters are classified into three different groups: geophysical disasters for example, earthquakes, meteorological calamities for instance, hurricanes, and hydrological disasters for example floods. These disasters all have implications for the economy. Some of the direct effects are loss of property and property includes roads and buildings, which are difficult to replace thus put an economy under long- term redevelopment pressures. Business disruptions appear frequently, primarily after storms and floods, as sites are impacted, and utilities are affected. Floods and droughts are also a large problem, as crops become destroyed, and food becomes scarce. Yet, the systemic effect results in a disconnection of the supply chain, and this is worst felt when the backbone of certain industries and business is a vital supply chain that was disrupted by the disaster. Also, areas that commonly experience many disasters would receive less investment since the perceived hazards discourage long-term equilibrium. Another important effect is population displacement, or forced migration; invariably, this results in shortage of housing, unemployment and pressure on social facilities [2].

It is shown in several salient examples that natural disasters have important and diverse economic effects. The Tohoku earthquake and tsunami of 2011 was the costliest natural disaster in history with damages estimated at 235 billion dollars, it affected globalization of supply chain and wrought devastation on the Japanese economy particularly in the region of the nuclear disaster at Fukushima. Hurricane Maria that hit Puerto Rico in 2017 led to the loss of \$90 billion, claiming lives and devastating property and business. Recovery has gradually been completed; people have moved to the mainland hence decreasing the number of workers. These cases illustrate the socioeconomic costs of disasters for the long term, particularly where there were predisposing conditions [2].

Disaster-related economic losses are predicted and controlled by several factors. One of them is the preparedness for the disaster and the policies of the government. Countries with good infrastructure, effective early warning systems and good disaster preparedness measures are least likely to feel the devastating effects socially or

economically. For instance, Japan's preparedness measures played a vital role in the minimize loss from the huge 2011 Tohoku earthquake. On the other hand, the regions that could not meet such requirements, for example, Puerto Rico during Hurricane Maria, had longer terms of restoration and higher exposure rates in terms of the economy. Government response is another important variable because coherent, inadequate, fast, and well-implemented policies support infrastructure and business recovery and stabilise the economy. On the other hand, the delay or insufficient support can worsen the economic losses and lengthen the period for coming back to stable, as it has happened following Hurricane Maria [3].

In the light of above facts, we can say that geographic location of a region also significantly contributes to the propensity of the particular region and its economy to suffer from the natural calamities and their economic effects. These regions include coastal regions which are highly susceptible to hurricanes, tsunamis and flooding result of water endowed region. Residential areas in the mountains are more susceptible to landslides and avalanches due to the incline of the area. Tectonic plate margins are prone to earthquake and volcanic activities and the most famous region in this class is the Pacific Ring of Fire. The specific geography or characteristics of a certain region determine which kinds of disasters are probable in the area; what extent of economic losses may be expected; how long it may take for the community, its structures and enterprises to be able to regain a normal functioning state; and to which degree infrastructure is impacted. Knowledge of those geographical conditions is vital in considering the strategies for disaster preparedness and prevention of further economic losses [4].

Historically, the assessment of impacts of natural disasters has employed economic models and methodologies namely input-output models, computable general equilibrium models and econometric analysis. I-O models are better employed in documenting the short-term aftermath of disasters such as disruptions of supply chain and industries and constrained by pre-prescribed production models. The global CGE models provide the concepts to forecast bigger changes including price changes, substitution, or the long-term recovery period while it needs more data sets and bulky

than the local models. Econometric models, for example, analyze the connection between degrees of economic losses and factors such as government subsidies or insurance, through statistical methods and thus are heavily data based, but suffer from the available data. These models have been used in research involving Hurricane Katrina disaster and the Tohoku earthquake both analyses bearing different economic impact and recovery. Nonetheless, all models have their weakness; and specifically, such models have moments where they inadequately portray real life economic models [4,5].

Statistics on the link between natural disasters and economic development involve information from different sources, including the GAME dataset that contains information on geological as well as meteorological events happening the world over. In the empirical papers, authors primarily rely on the ordinary least square regression models to evaluate how disasters influence the rates of GDP expansion. By the use of these methods, researcher assess the short-term and even the long-term effects on the affected economies. For example, research postulated that its impact may extend over several years of a losing economy and that a country's recovery may depend on the extent of institutional quality, governance, and contingency. This information analysis exposes control variables to reveal patterns and predict future risks as well as inform policymaking [6].

As for the policy recommendations that could help reduce the bad economical effects of natural disasters, they are the following. To begin with, disaster mitigation needs to be highly emphasised by purchase of early warning devices, improvement of structures against disasters and public awareness. Such policies need to develop the financial action plan that concerns the creation of an emergency fund and insurance against the disasters occurring losses. International organizations can help by offering monetary support and knowledge, the private section on the other hand should indulge in risk mitigation and recovery strategies. Each of these measures can help to decrease the long-term cost of natural catastrophes, and to enable faster returns to normal after perils [7].

Natural disasters are costly and reduce the level of development by causing

damage to property and business interruption over the brief period and eradicating the possibilities of growth eventually. The results suggests that mitigation of these impacts is through prior preparations, strong structures, and financial insurance, and that worldwide collaboration is vital for enhancing the coping systems of vulnerable areas. The research is important because the study shows that in order to reduce economic losses and promote post disaster recovery, there should be synergy between the government, the international bodies, and the private sector.

References

1. Record thunderstorm losses and deadly earthquakes: the natural disasters of 2023 Munich Re. (n.d.). <https://www.munichre.com/en/company/media-relations/media-information-and-corporate-news/media-information/2024/natural-disaster-figures-2023.html>
2. Economic Lessons from Natural Disasters. (n.d.). NBER. <https://www.nber.org/reporter/2021number1/economic-lessons-natural-disasters>
3. Two Similar Extreme Storms, Two Very Different Socioeconomic Impacts. (2021, November 22). Iit.edu. <https://www.iit.edu/news/two-similar-extreme-storms-two-very-different-socioeconomic-impacts>
4. How Does Geography Affect Natural Disasters: Exploring the Earth's Impact | Spatial Post. (2023, December 21). Spatial Post. <https://www.spatialpost.com/how-does-geography-affect-natural-disasters/>
5. Six Sigma Daily. (2012, August 20). Input output model. Sixsigmadaily.com. <https://www.sixsigmadaily.com/input-output-model/>
6. Medina, J. (2019). A Closer Look at Economic Impacts of Natural Disasters on Growth. https://cla.csulb.edu/departments/economics/wp-content/uploads/2019/06/Medina_2018.pdf
7. Laframboise, Ms. Nicole., & Mr.Boileau Loko. (2012). Natural Disasters. International Monetary Fund.